

# **Attunity Adapter Suite for Microsoft BizTalk Server**

Version 1.2



## ***Attunity Adapter Suite for Microsoft BizTalk Server***

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# Table of Contents

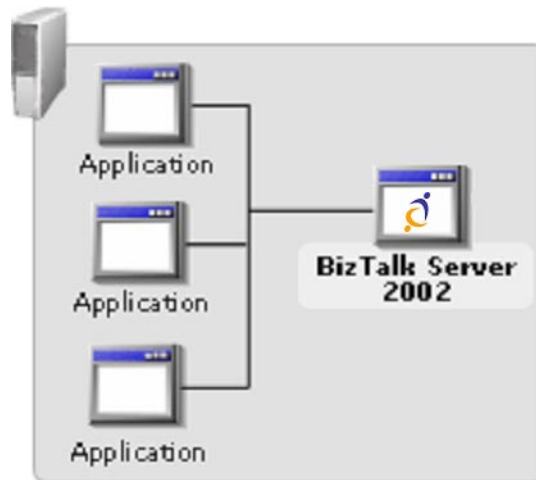
<b>Using the Attunity Adapter Suite for Microsoft BizTalk Server</b>	<b>5</b>
Installing the Attunity Adapter Suite for Microsoft BizTalk Server .....	6
Using the Attunity Adapter Suite for Microsoft BizTalk Server.....	7
Adding Adapter Definitions .....	9
Defining a Port .....	13
Defining Channels .....	14
Defining a Batch Interaction.....	17
Saving Definitions.....	18
Using the Receive Function.....	18
The Receive Function Service .....	21
Testing an Attunity Connect Adapter Within BizTalk Server .....	22
Synchronizing the Attunity Adapter Suite for Microsoft BizTalk Server With BizTalk Server.....	24



# Using the Attunity Adapter Suite for Microsoft BizTalk Server

The Attunity Adapter Suite for Microsoft BizTalk Server is an Application Integration Component (AIC) for use with Microsoft BizTalk Server.

The Attunity Adapter Suite for Microsoft BizTalk Server interfaces with the BizTalk Messaging Manager and enables exchanging messages in run-time synchronously or asynchronously. Once defined in the messaging manager, information from any source accessible by Attunity Connect can be used in a BizTalk process.



Microsoft BizTalk Server provides a Web-based development and execution environment that integrates loosely coupled, long-running business processes, including existing processes, both within and between businesses. The server provides a standard gateway for sending and receiving documents across the Internet, as well as providing a range of services that ensure data integrity, delivery, security, and support for the BizTalk Server Framework and other key document formats.

## Installing the Attunity Adapter Suite for Microsoft BizTalk Server

The Attunity Adapter Suite for Microsoft BizTalk Server must be installed on the same machine that runs Microsoft BizTalk Server. However, Attunity Connect itself does not need to be installed on this machine.

- ❖ After upgrading from Attunity Adapter Suite for Microsoft BizTalk Server version 1.1, you must edit the adapter definitions to add username and password information.

### ► To install the Attunity Adapter Suite for Microsoft BizTalk Server:

Run the self-extracting executable installation file, **Attunity\_Adapter\_SuiteV1.2.exe**, either via the Run option in the Windows Start menu or through Windows Explorer.

- ❖ The following files are written to the \MessagingManager\pipeline directory, under the directory where BizTalk Server is installed:

Attunity\_ACXPipelineComp\_1.asp  
Attunity\_ACXPipelineComp\_1\_post.asp

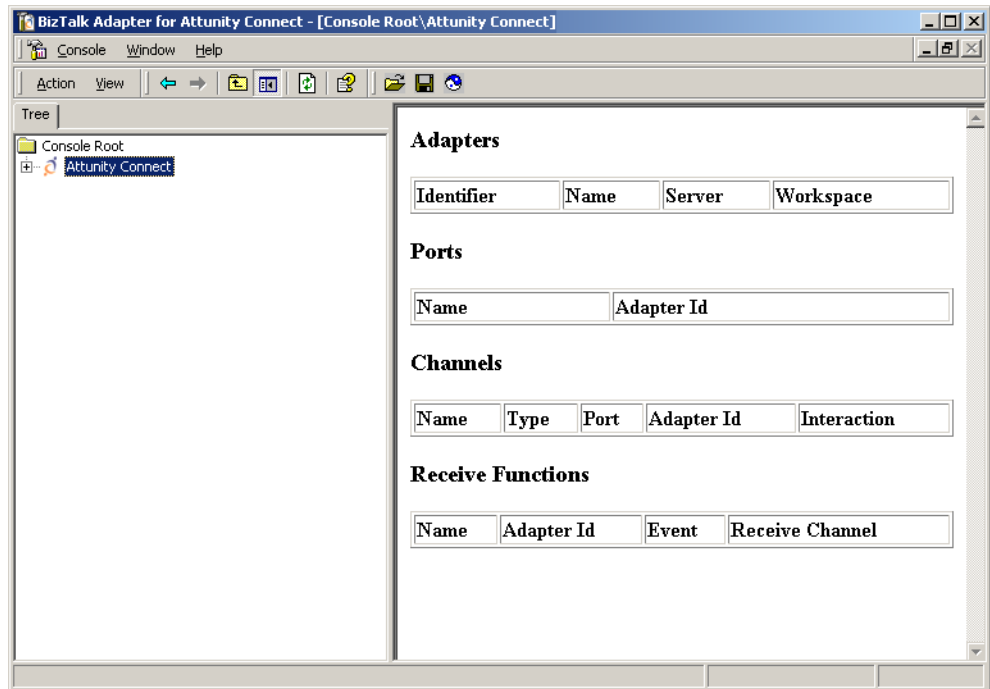
Make sure that these files are copied to the right location (if not they are located in the \Attunity\Adapter Suite for MS BizTalk Server\bin directory under the directory where the Attunity Adapter Suite for Microsoft BizTalk Server is installed.

Once installed, the Attunity Adapter Suite for Microsoft BizTalk Server Microsoft Management Console (MMC) SnapIn is available from the Start menu: **Start | Programs | Attunity | Attunity Adapter Suite for Microsoft BizTalk Server | Management console.**

Changes made in the console are stored both in the Attunity Adapter Suite for Microsoft BizTalk Server repository and the BizTalk Server repository. Thus, you only need to make the necessary definitions in the Attunity Adapter Suite for Microsoft BizTalk Server and these definitions are automatically displayed in the BizTalk Server Messaging Manager.

## Using the Attunity Adapter Suite for Microsoft BizTalk Server

The Attunity Adapter Suite for Microsoft BizTalk Server console is a Microsoft Management Console (MMC) SnapIn. Access the Attunity Adapter Suite for Microsoft BizTalk Server from the Start menu: **Start | Programs | Attunity | Attunity Adapter Suite for Microsoft BizTalk Server | Management console**. The Attunity Adapter Suite for Microsoft BizTalk Server console is displayed:



The console includes the following (shown as a report in the right pane and as items in the left pane when the Attunity Connect node is expanded):

**Adapters** – Adapters defined in Attunity Connect that are used in BizTalk Server. The Adapter node enables you to define all the components (such as the ports and channels) necessary for the definition of the adapter within BizTalk Server.

**Ports** – Each Attunity Connect adapter defined to BizTalk Server requires a port. The Ports node provide a view of the ports defined, independently of the adapters.

**Channels** – Each Attunity Connect adapter interaction defined to BizTalk Server requires a channel for the document from BizTalk Server to the adapter and, optionally, a channel for the response document, if there is one, returned to BizTalk Server. This channel, for the response document from the adapter to BizTalk Server, must be associated with a port that has previously been defined in BizTalk Server Messaging Manager.

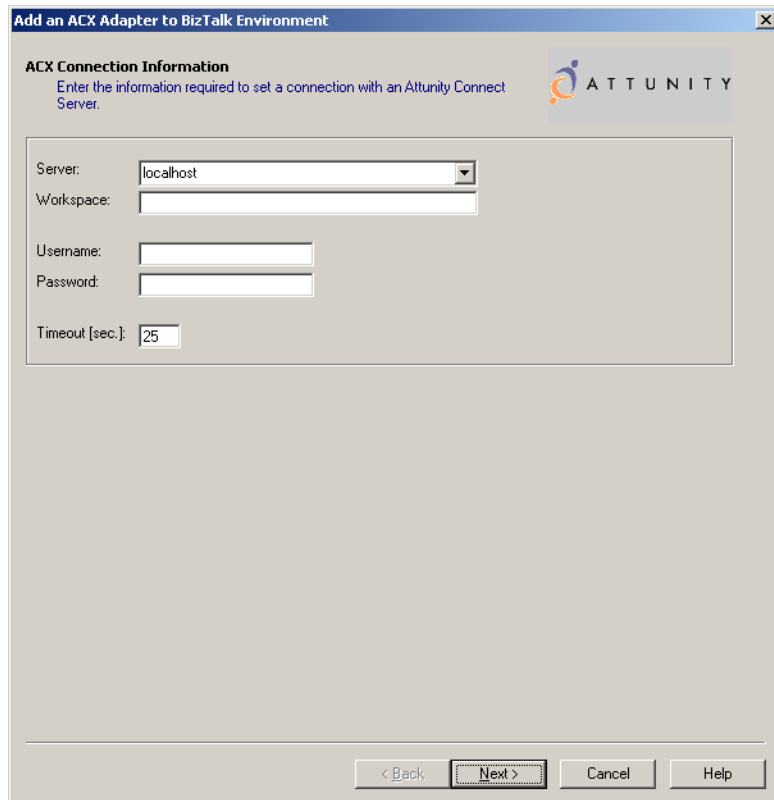
The Channels node provide a view of the channels defined, independently of the adapters.

**Receive Functions** – The Receive Function is a BizTalk function that provides listening capabilities for documents from an external source. When you need to receive documents from a receive location and submit them to Microsoft BizTalk Server, you can configure receive functions to process the data. For example, to receive an event from Attunity Connect, you use a receive function to listen for the event and to submit the document to BizTalk Server. For details, see "Using the Receive Function" on page 18.



## Adding Adapter Definitions

Any adapter defined in an Attunity Connect binding configuration can be added to the Attunity Adapter Suite for Microsoft BizTalk Server. Right-click the Adapter node and choose Add Adapter. The following window is displayed:



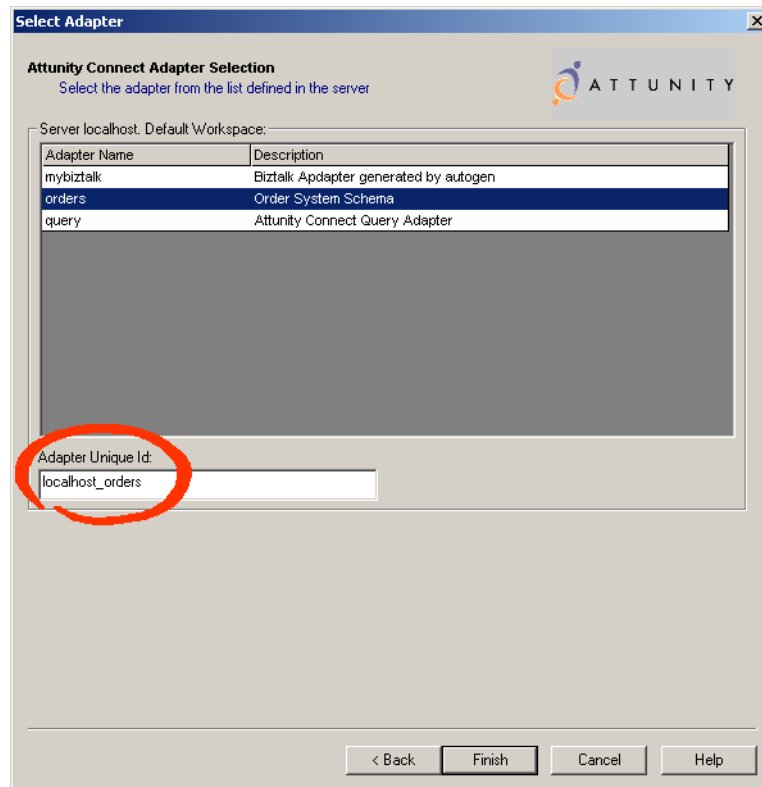
The screenshot shows a dialog box titled "Add an ACX Adapter to BizTalk Environment". Inside the dialog, there is a section titled "ACX Connection Information" with a sub-instruction: "Enter the information required to set a connection with an Attunity Connect Server." The Attunity logo is visible in the top right corner of this section. Below the instruction, there are several input fields: "Server:" with a dropdown menu showing "localhost", "Workspace:" with an empty text box, "Username:" with an empty text box, "Password:" with an empty text box, and "Timeout (sec.):" with a text box containing the number "25". At the bottom of the dialog, there are four buttons: "< Back", "Next >", "Cancel", and "Help".

The binding configuration for the adapter to be added can be on any server with an active daemon. Specify the server and the workspace (or leave blank to use the default Navigator workspace).

If necessary specify a username and password for the server. The username and password are stored as part of the adapter BizTalk Server schema, with the password encrypted. For more details about the BizTalk Server schema, refer to "A Note About the BizTalk Server schema" on page 12.

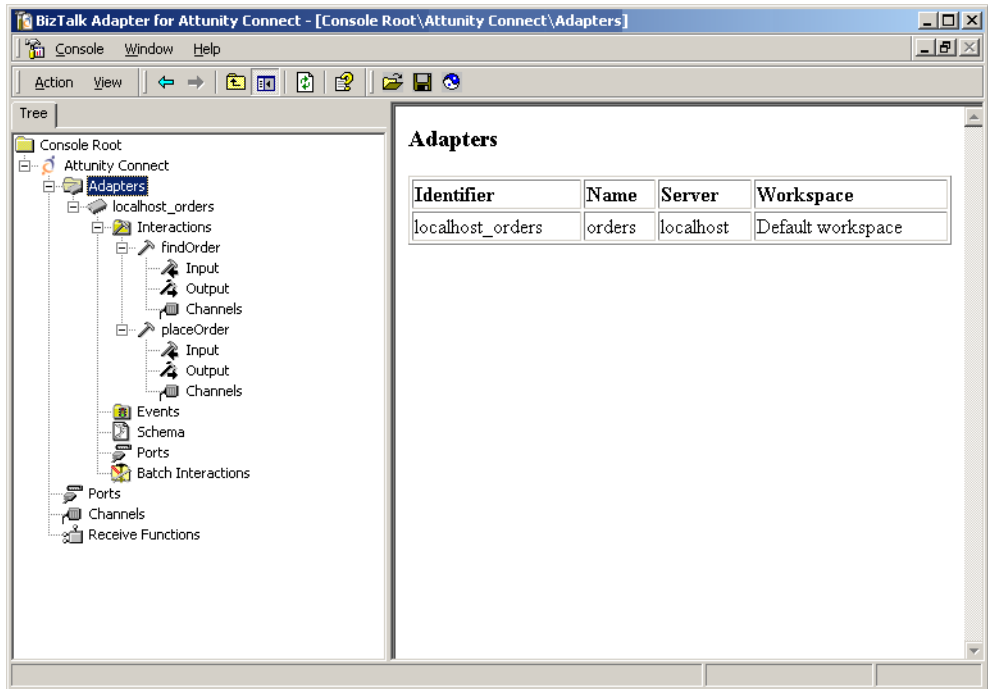
Also specify the amount of time allowed to connect to the server, before timing out, in the Timeout field.

Click **Next** and a list of adapters defined in the specific binding configuration identified by the server and workspace is displayed. Choose an adapter from the list. A unique name is assigned to the adapter, which is used within BizTalk Server when working with the adapter:

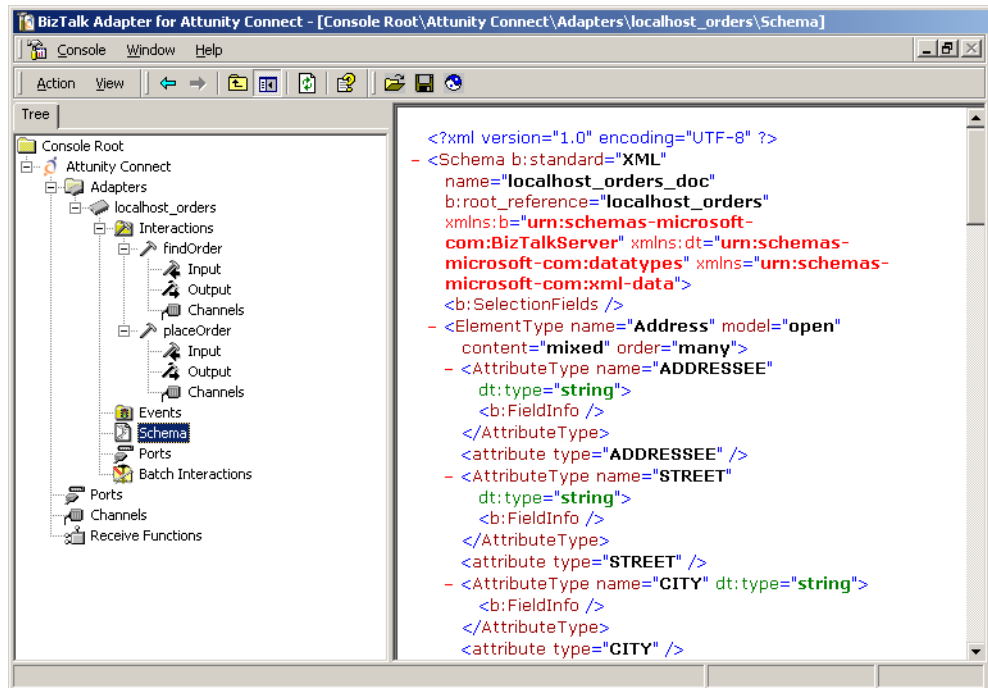


- ❖ The name assigned can be long, since the adapter name is appended to the computer name. However, the name displayed **must** not be longer than 64 characters. If the name is greater than 64 characters, change the name to a name less than or equal to 64 characters.

After clicking **Finish**, the adapter is defined for use in BizTalk Server, including all the interactions for the adapter:



The adapter definition is converted to a XML schema using the BizTalk schema protocol, so that input documents are readable by BizTalk Server:



Under each interaction item, the input and output schemas, using the BizTalk Server schema, are displayed.

Before the adapter can be used in BizTalk Server, it must be assigned a port and each interaction defined a channel.

### A Note About the BizTalk Server schema

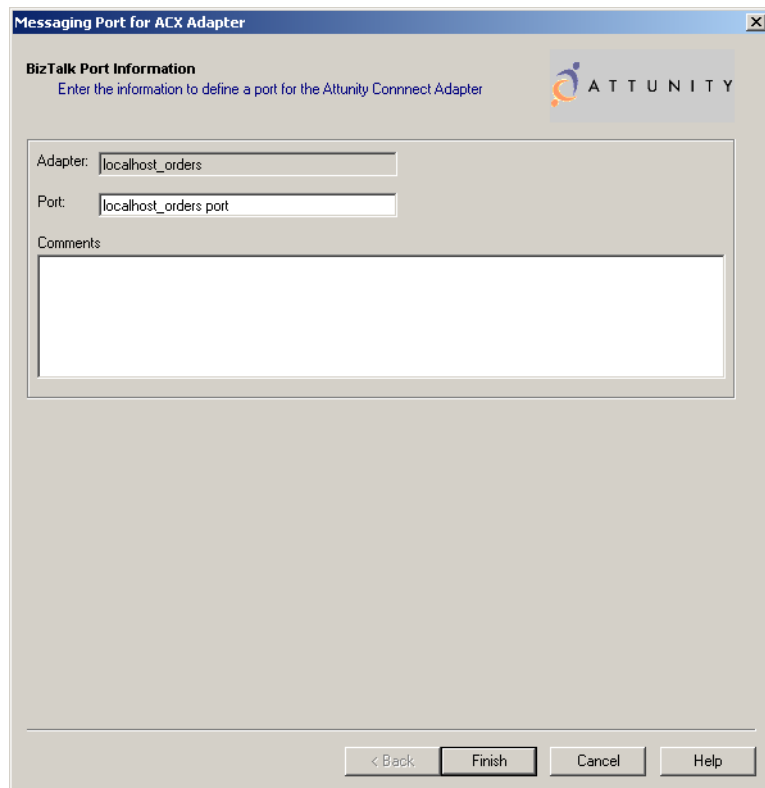
The BizTalk Server schema is an XML-Data Reduced (XDR) schema). The XDR syntax does not fully match the Attunity Connect XML protocol (ACX). Thus, problems can arise when there are incompatibilities between the two schema types. These incompatibilities can only be resolved manually, if and as they occur.

An example of a difference is that both schemas support a Boolean type. However, ACX recognizes true and false as valid values, while an XDR schema recognizes 1 and 0 as valid values. Thus, the XDR schema shows a string type when ACX expects a Boolean type.

## Defining a Port

A port is a set of properties used to configure BizTalk Messaging Services to transport documents to specified destination, using specified transport service. For each adapter, you define a port.

You can define a port for the adapter directly by right-clicking the specific adapter item or the port item under the adapter. The following window is displayed:



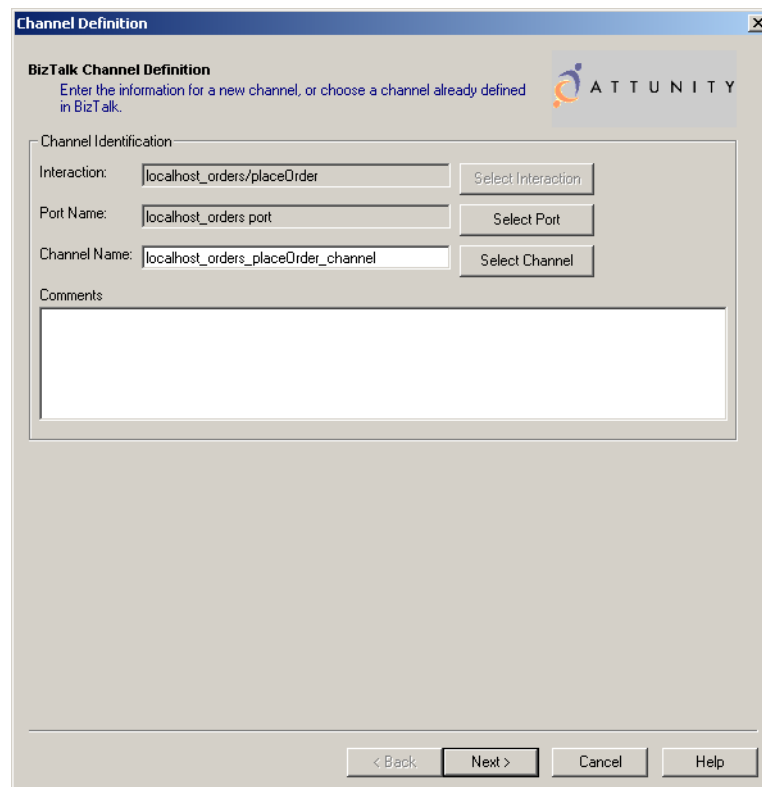
- ❖ You can also define a port by right-clicking the Ports node. In this case, you have to specify the adapter to be assigned to the port.

After defining a port for the adapter, you define channels for each adapter interaction.

## Defining Channels

A channel is a set of properties used to configure BizTalk Messaging Services to process a document. Thus, for each interaction you need to specify a channel from BizTalk Server to the Attunity Connect adapter. When the interaction produces a response, you need to define a channel for the response from Attunity Connect to BizTalk Server. This channel (for the response from Attunity Connect to BizTalk Server) must be associated with a port that has previously been defined in BizTalk Server.

You can define a channel for the interaction directly by right-clicking the specific interaction item or the previously defined port under the adapter. The following window is displayed:



The image shows a 'Channel Definition' dialog box with the following components:

- Title Bar:** Channel Definition
- Section Header:** BizTalk Channel Definition
- Instructions:** Enter the information for a new channel, or choose a channel already defined in BizTalk.
- ATTUNITY Logo:** Located in the top right corner.
- Channel Identification Section:**
  - Interaction:** Text box containing 'localhost\_orders/placeOrder' and a 'Select Interaction' button.
  - Port Name:** Text box containing 'localhost\_orders:port' and a 'Select Port' button.
  - Channel Name:** Text box containing 'localhost\_orders\_placeOrder\_channel' and a 'Select Channel' button.
- Comments:** A large empty text area for additional notes.
- Navigation Buttons:** '< Back', 'Next >', 'Cancel', and 'Help' buttons at the bottom.

- ❖ You can also define a channel by right-clicking the Channels node. In this case, you have to specify the adapter interaction and port to be associated with the channel.

The channel definition includes a name for the channel and the port that it is associated with. In addition, you have to specify the organization that is associated with this channel or the application that

is used with this channel. Finally, you specify a channel and port for a response from Attunity Connect to BizTalk Server.

Within Attunity Connect it makes no difference whether you specify an organization or application, since this information is for reference only. In general, an organization is specified when the target application is another organization and application is specified when the target is an application within the enterprise.

Organizations are defined in the BizTalk Messaging Manager. A default organization, called Home Organization, is predefined in BizTalk Server.

Clicking **Next** enables you to specify the organization or application for the channel:

**Source Of Channel**

**Interaction Channel Definition**  
Enter the information for a channel to be used as input for the interaction from BizTalk

Select the BizTalk Source for the Channel

☒ Organization

Name:

☐ Application

Name:

**Select an Organization**

Available organizations:

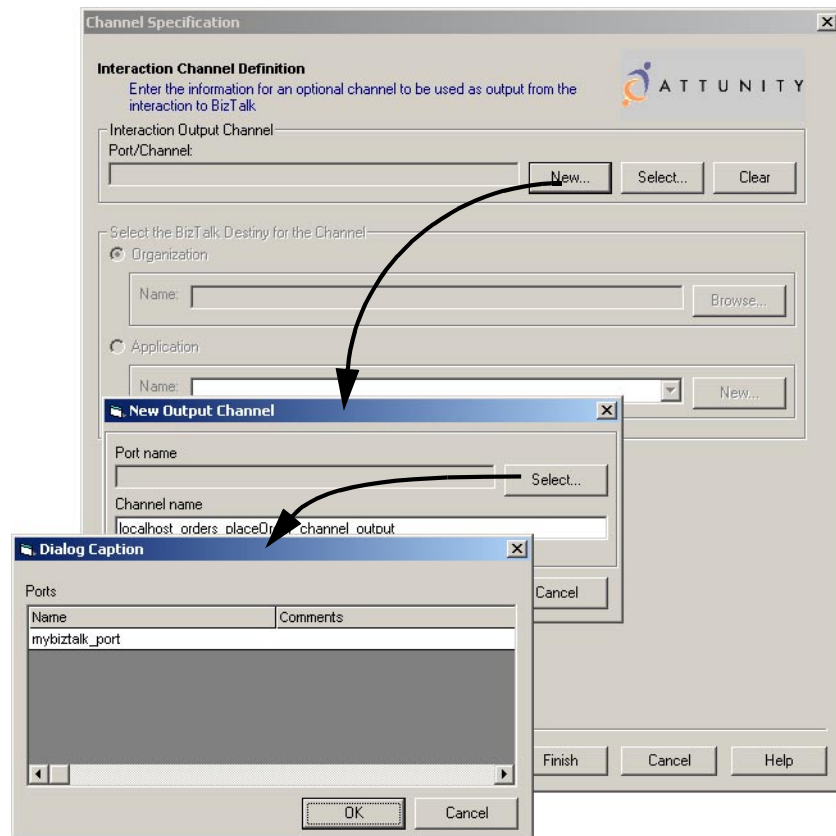
Organization Name	Date Modified
Home Organization	7/11/2002
Attunity Ltd.	7/10/2002

< Back   Next >   Cancel   Help

Each interaction is defined with a channel from BizTalk Server to the Attunity Connect adapter and, optionally, a channel for the response from the Attunity Connect adapter to BizTalk Server.

When defining a channel from the Attunity Connect adapter to BizTalk Server, the channel must be associated with a port that has previously been defined in BizTalk Server. This is the only occasion when any definitions that impact on Attunity Connect need to be made in BizTalk Server as opposed to the Attunity Adapter Suite for Microsoft BizTalk Server console.

Clicking **Next** enables you to specify the channel for the interaction response:



Clicking **New** enables a new channel to be defined for an existing port (defined previously in BizTalk Server).

Clicking **Select** enables an existing channel to be defined for the interaction response from BizTalk Server.

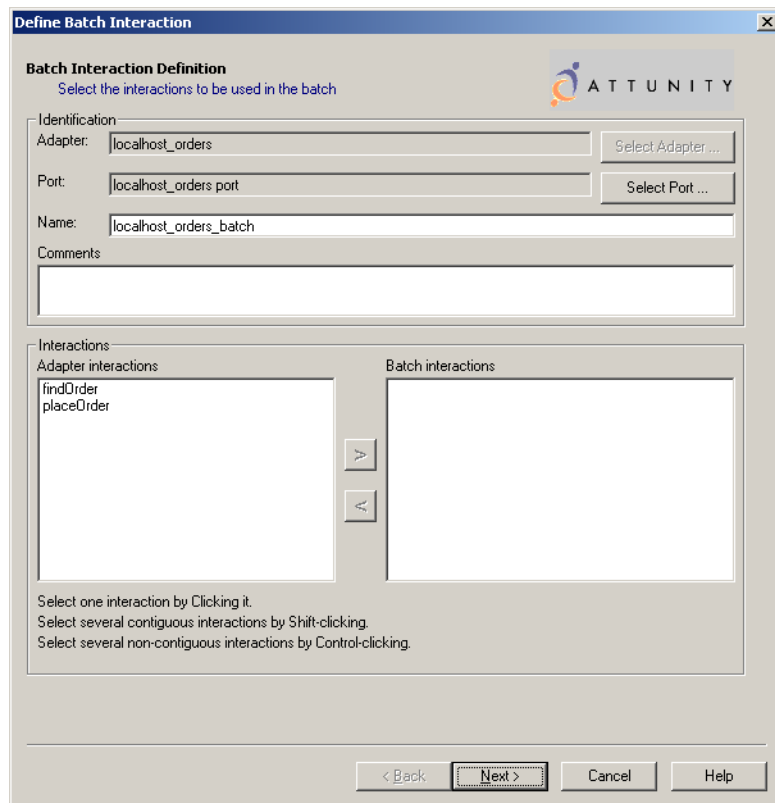


## Defining a Batch Interaction

You can define a channel that includes a number of interactions from an adapter, batched together. When executed, all the interactions in the batch interaction are executed in a single transaction: either all succeeding or, if one fails, none are committed.

- ❖ The batch interaction can be associated with one channel only.

You define a batch interaction by right-clicking the Batch Interaction item under the adapter and selecting Define Batch Interaction. The following window is displayed:



The dialog box is titled "Define Batch Interaction" and features the Attunity logo in the top right corner. It is divided into two main sections: "Batch Interaction Definition" and "Interactions".

**Batch Interaction Definition:** This section contains the following fields and buttons:

- Adapter:** A text box containing "localhost\_orders" and a "Select Adapter ..." button.
- Port:** A text box containing "localhost\_orders port" and a "Select Port ..." button.
- Name:** A text box containing "localhost\_orders\_batch".
- Comments:** An empty text area.

**Interactions:** This section contains two list boxes and two arrow buttons:

- Adapter interactions:** A list box containing "findOrder" and "placeOrder".
- Batch interactions:** An empty list box.
- Two arrow buttons (one pointing right, one pointing left) are positioned between the two list boxes.

Below the list boxes, the following instructions are provided:

- Select one interaction by Clicking it.
- Select several contiguous interactions by Shift-clicking.
- Select several non-contiguous interactions by Control-clicking.

At the bottom of the dialog box, there are four buttons: "< Back", "Next >", "Cancel", and "Help". The "Next >" button is highlighted with a dashed border.

The batch interaction definition includes a name for the channel and the port that it is associated with. You then select the interactions that you want batched together and click the right arrow to add them to the list of batch interactions.


- ❖ You must select at least one interaction.

Clicking **Next** enables you to continue with the specification as described above (specifying the organization or application for the channel on page 15).

When specifying a schema, in Attunity Connect (as part of the adapter definition), the same output record can be used for more than one interaction. This will result in a BizTalk Server schema with only one output, even when multiple interactions were batched. Thus, in the schema in Attunity Connect, make sure that the record names for each interaction are unique.

- ❖ When using the outputRoot attribute to specify the format of the output root and record, make sure that both the root and record are unique per interaction.

## Saving Definitions

Click the Save button () to save definitions made in the Attunity Adapter Suite for Microsoft BizTalk Server to both the BizTalk Server repository and to the Attunity Adapter Suite for Microsoft BizTalk Server. If changes are made in either BizTalk Server or the Attunity Adapter Suite for Microsoft BizTalk Server, which are not updated to the other repository, you can use the synchronization utility to make sure both repositories have the same information. For details about synchronization, see "Synchronizing the Attunity Adapter Suite for Microsoft BizTalk Server With BizTalk Server" on page 24.

## Using the Receive Function

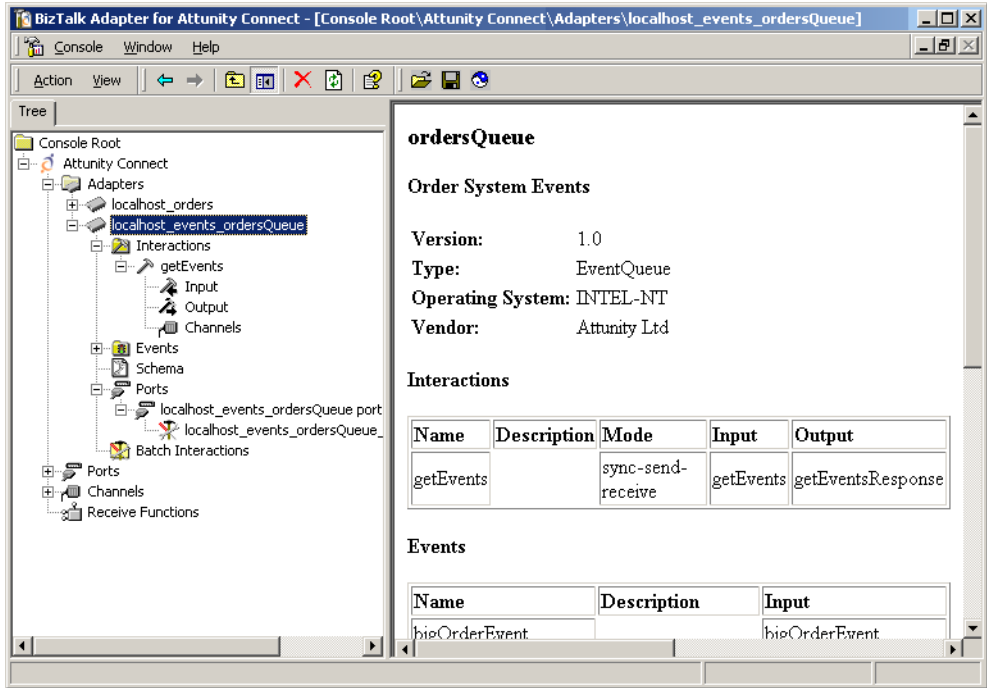
The Receive Function is a BizTalk function that is started as a service and provides listening capabilities for documents from an external source. That is, the Receive Function waits for incoming documents to trigger its operation. The Receive Function works with an Attunity Connect event adapter (an adapter with the type eventQueue).

- ❖ If a Receive Function is defined directly in BizTalk Server, it cannot be deleted from within the Attunity Adapter Suite for Microsoft BizTalk Server.

► **To set up the Receive Function in the Attunity Adapter Suite for Microsoft BizTalk Server:**

1. Add an adapter, specified in the Attunity Connect binding configuration with a type of eventQueue, to the console.
  - ❖ It is recommended to use an Attunity Connect daemon workspace specifically customized for the adapter. For details of events and setting up event workspaces, refer to the *Attunity Connect Reference*.
2. Define a port for the adapter, as described in "Defining a Port" on page 13.

In the following diagram, the Ordersqueue adapter, supplied as a sample with the Attunity Connect installation is defined in the Attunity Adapter Suite for Microsoft BizTalk Server console:



Note in the above diagram that the port localhost\_events\_ordersQueue is defined for the adapter.

- Once the event adapter has been added, right-click the Receive Function node and choose Define Receive Function. The following window is displayed:

**Receive Function Information**

**ACX Receive Function Definition**  
Enter the information for a new Receive Function.

Receive Function Identification

Event:

Receive Function:

Openness Type:  ☐ Submit with pass-through flag

Envelope name:

Channel name:

Document definition name:

Source and Destination

Source

Qualifier:  Organization:

Destination

Qualifier:  Organization:

< Back **Finish** Cancel Help

- Click the Select Event button and select an event from the displayed list. Specify a channel for the event. The channel can be an existing channel or a new channel.

Specify an Envelope name of an existing envelope if you are encapsulating the event data.

- ❖ An envelope typically consists of header and footer information, or of header information only. The envelope properties provide Microsoft BizTalk Server with information that the server needs to either open inbound interchanges or create outbound interchanges.

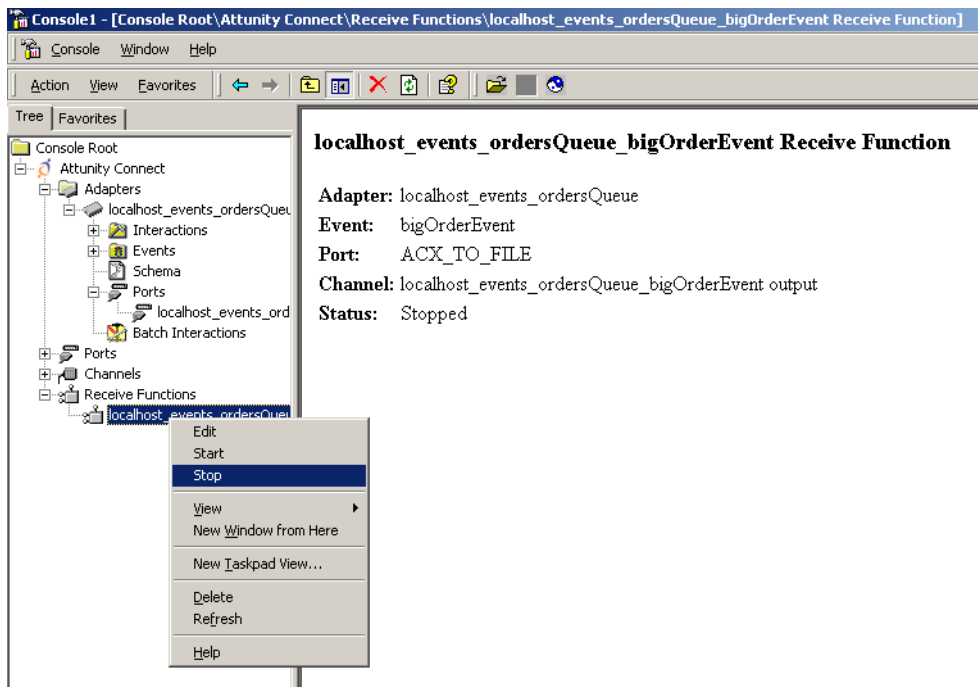
The other fields on the screen are for use when the Openness Type is either Open Destination or Open Source. For details of openness, refer to the BizTalk Server documentation.

- Click **Finish** to complete the Receive Function definition.
- Save the Receive Function definition.

7. Right-click the receive function and select Start to start the Receive Function as a service in Windows.

### The Receive Function Service

The receive function service can be started and stopped from within the Attunity Adapter Suite for Microsoft BizTalk Server console, by right-clicking the receive function. The status of the function is displayed in the right pane:



- ❖ You must Delete a receive function, automatically stops the service, prior to the deletion.

## Testing an Attunity Connect Adapter Within BizTalk Server

You can test the adapter definitions using a tool supplied as part of the BizTalk Server installation: the DirectIntegration application. This application is located in \SDK\Messaging Samples\DirectIntegration\EXE\DirectIntegration.exe under the directory where BizTalk Server is installed.

### Example

In the following example, the orders adapter was defined in BizTalk Server. The following order was placed (using the placeOrder interaction):

```
<placeOrder>
  <ORDER ORDERED_BY="Doctor J">
    <ADDRESS ADDRESSEE="Dr. J" STREET="South Road" CITY="New York"
      ZIP="15418" STATE="NY" COUNTRY="USA"></ADDRESS>
    <LINES LINE_NO="1" ITEM_NAME="Bubble Gum" QUANTITY="500"
      ITEM_PRICE="0.2"></LINES>
    <LINES LINE_NO="2" ITEM_NAME="Candy Bar" QUANTITY="50"
      ITEM_PRICE="0.9"></LINES>
  </ORDER>
</placeOrder>
```

A new order is placed in the Orders application and the order number returned as the response to the new order request.

The DirectIntegration application is set to accept the XML as a document in the application, instead of a file. In order that no encryption of the document is done, the Pass through box is also checked.

The channel specified is localhost\_orders\_placeOrder\_channel, which is the channel defined for output from Attunity Connect to BizTalk

Server. Since the source and destination for the message is known, the BizTalk Server Openness type is set to NOTOPEN.

The screenshot shows the 'BizTalk Direct Integration' window with the 'Suspended Queue' tab selected. The 'Choose Machine' dropdown is set to 'MAY'. The 'Document to Send' section has a 'FileName' field and a 'Browse' button. Below this, there are two checked options: 'Send as document instead of as file' and 'Pass through'. The main text area contains an XML document structure for a 'placeOrder' message. Below the text area are 'DocName' and 'EnvelopeName' dropdowns. The 'Routing' section includes 'Source Qualifier', 'Destination Qualifier', 'Source ID', 'Destination ID', 'Channel Name', and 'Openness' dropdowns. The 'Channel Name' is set to 'orders.placeOrder\_channel' and the 'Openness' is set to 'BIZTALK\_OPENNESS\_TYPE\_NOTOPEN'. Both the 'Channel Name' and 'Openness' dropdowns are circled in red. At the bottom, there are 'Submit' and 'Submit Sync' buttons. The status bar at the very bottom shows the following messages: 'Interchange::CheckSuspendedQueue', 'Interchange::GetSuspendedQueueItemDetails', and 'Interchange::GetSuspendedQueueItemDetails'.

**BizTalk Direct Integration**

View

Submit | **Suspended Queue**

Choose Machine: MAY

Document to Send

FileName:  Browse

☒ Send as document instead of as file ☒ Pass through

```
<placeOrder>
<ORDER ORDERED_BY="Doctor J">
  <ADDRESS ADDRESSEE="Dr. J" STREET="South Road" CITY="New York"
    ZIP="15418" STATE="NY" COUNTRY="USA"></ADDRESS>
  <LINES LINE_NO="1" ITEM_NAME="Bubble Gum" QUANTITY="500"
    ITEM_PRICE="0.2"></LINES>
  <LINES LINE_NO="2" ITEM_NAME="Candy Bar" QUANTITY="50"
    ITEM_PRICE="0.9"></LINES>
</ORDER>
</placeOrder>
```

DocName:  EnvelopeName:

Routing

Source Qualifier:  Destination Qualifier:

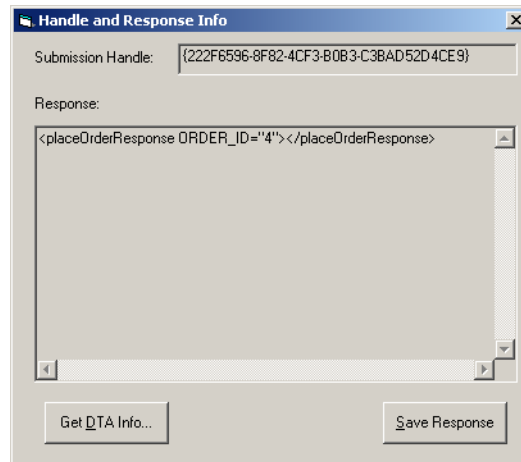
Source ID:  Destination ID:

Channel Name: **orders.placeOrder\_channel** Openness: **BIZTALK\_OPENNESS\_TYPE\_NOTOPEN**

Submit Submit Sync

Interchange::CheckSuspendedQueue  
Interchange::GetSuspendedQueueItemDetails  
Interchange::GetSuspendedQueueItemDetails

The document is submitted using the SubmitSync button, enabling the following response to be displayed:



## Synchronizing the Attunity Adapter Suite for Microsoft BizTalk Server With BizTalk Server

When changes are made directly to the BizTalk Messaging Manager while the Attunity Adapter Suite for Microsoft BizTalk Server is open, or to the Attunity Adapter Suite for Microsoft BizTalk Server while BizTalk Server is down, differences will result in the two repositories. You can synchronize the repositories from within the Attunity Adapter Suite for Microsoft BizTalk Server. The following synchronization options are available:

**Synchronize new information from BizTalk Server** – Any new definitions made directly in the BizTalk Server Messaging Manager are reflected in the Attunity Adapter Suite for Microsoft BizTalk Server.

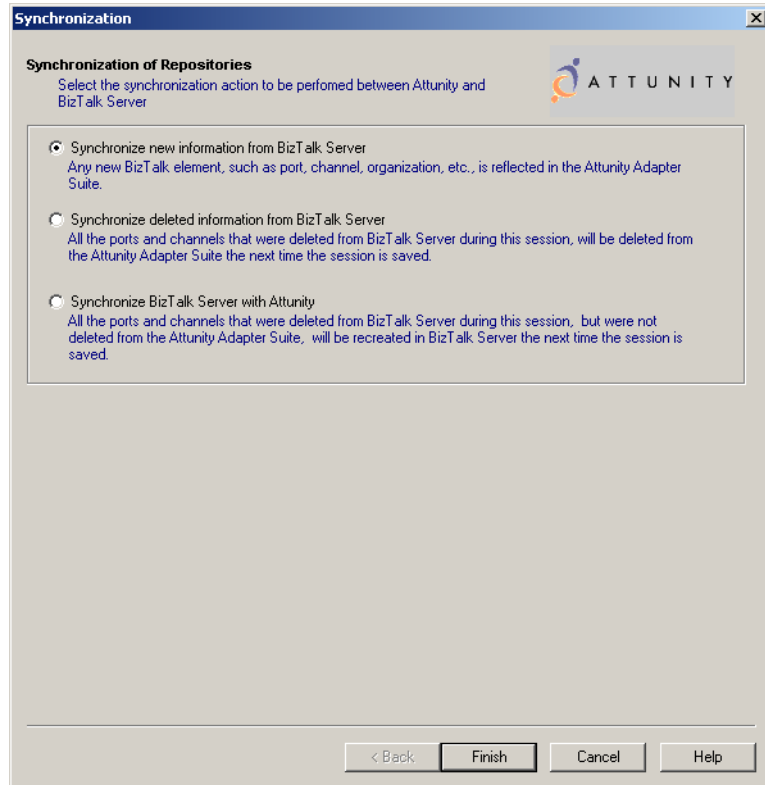
**Synchronize deleted information from BizTalk Server** – Any definitions deleted directly in the BizTalk Server Messaging Manager are deleted in the Attunity Adapter Suite for Microsoft BizTalk Server.

**Synchronize BizTalk Server with Attunity** – Any definitions deleted directly in the BizTalk Server Messaging Manager but not deleted from the Attunity Adapter Suite for Microsoft BizTalk Server, are recreated in the BizTalk Server Messaging Manager.



► **To synchronize the repositories:**

 In the Attunity Adapter Suite for Microsoft BizTalk Server console, click the Synchronize button. The following window is displayed:



Choose the synchronization method required (as described above, and click **Finish**.



# Index

## A

- adapters 7
  - adding 9
- adding
  - adapter definitions 9

## B

- BizTalk Server Messaging Manager 6

## C

- channels 8
  - defining 14

## D

- defining
  - channels 14
  - ports 13, 17
  - receive functions 18
- DirectIntegration application
  - testing 22

## I

- installing 6

## M

- Microsoft management Console 6
- MMC 6

## P

- ports 7
  - defining 13, 17

## R

- Receive Functions 8
- receive functions
  - using 18
- repository
  - saved information 6
  - saving definitions 18

- synchronization 18

## S

- saving
  - definitions 18
  - synchronization 18
- starting the BizTalk Adapter Suite for Attunity Connect 6, 7

## T

- testing 22
  - DirectIntegration application 22

